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# How to Make Squats Easier on Your Knees

Analysis by Dr. Joseph Mercola | November 08, 2024

## STORY AT-A-GLANCE

- Squatting is an effective functional exercise that engages the entire body. It requires no equipment, can be done almost anywhere and is naturally incorporated into daily activities like sitting down
- For individuals with knee issues, doing squats can be challenging and painful. The good news is it can be modified to reduce knee strain while you gradually strengthen your muscles
- Knee pain while squatting results from various factors, such as poor technique, muscle weakness, tightness in surrounding muscles or pre-existing joint issues like osteoarthritis
- Modified squat variations, including shallow squats, forward torso lean and outward toe rotation, reduces strain on the knees, allowing you to do this exercise more comfortably and without pain
- Additional strategies for safe, effective and pain-free squatting are included below

**Squats are one of the most effective functional exercises you can do. It requires no equipment, is easy to perform and can be done almost anywhere. While it's often thought of as a leg exercise, squats actually engage your entire body, including your core.**

**We unconsciously incorporate squats into our daily routines, from picking something up from the floor to lowering ourselves onto chairs or sitting up. In many cultures**

worldwide, squatting remains a common posture for various activities like dining, using the restroom, cooking or resting.

For those with knee issues, however, the thought of doing squats might seem challenging. But the good news is you can do it without pain. The key is learning to modify your technique to reduce strain on your knees while gradually strengthening the muscles that support them. With time, these modifications help you squat with less discomfort and greater ease.

## What Causes Knee Pain While Squatting?

Our bodies are naturally built to squat without pain. If you're experiencing discomfort, the issue could stem from your muscle strength, flexibility, joint health or technique. One common reason is poor form, which unintentionally places excessive strain on your knees, leading to discomfort or injury. Over time, repetitive squatting with improper form worsens this strain, causing chronic knee pain.[1]

Another factor is weakness in the muscles that support the knee joint. If your quadriceps, hamstrings and glutes aren't strong enough to properly stabilize your body, your knees will end up compensating for that lack of strength. This added stress on the knee joint causes pain, especially during movements like squatting that require a coordinated effort from multiple muscles.[2]

Pre-existing joint issues such as arthritis or cartilage damage are also a major factor for pain while doing squats. Arthritis, particularly osteoarthritis, wears down the cartilage cushioning your knee joint. Without that cushioning, the bones in your knee rub against each other, leading to pain and inflammation, making movements more difficult and painful.[3]

Tight muscles or tendons, particularly in the hips and ankles, contribute to knee pain as well. When your body lacks flexibility in these areas, the movement patterns during a squat are altered, putting stress on the knees. Tightness in the hip flexors, for example, prevents your hips from moving freely, forcing the knees to take on more of the load.[4]

Previous knee injuries, such as ligament tears, pulled hamstrings or tendon strains, also make squatting painful. Even after healing, the knee could remain sensitive to stress, or scar tissue could limit mobility. This leads to compensatory movement patterns that stress the joint in new ways, causing pain and discomfort.[5,6]

Lastly, overexertion plays a significant role. Engaging in repetitive squatting exercises, whether for work, sports or workouts, without allowing your body enough time to recover causes inflammation in the tendons and ligaments around the knee. Over time, this leads to chronic pain and injury.[7]

## Try These Knee-Friendly Squat Variations

If you're experiencing knee pain, modified squat variations are an effective way to safely include this fundamental exercise in your fitness regimen. Also referred to as squat regressions, these adjustments allow you to perform squats with reduced stress on your joints while still targeting the important muscle groups involved. Here are several modified squat variations recommended by experts for those dealing with knee discomfort:[8,9,10,11]

**Shallow squats —** This variation is ideal for people with kneecap pain, osteoarthritis and those recovering from anterior cruciate ligament (ACL) surgery, as it limits the amount of pressure on the joints.

Instead of dropping into a deep squat, lower yourself only to the point where you feel comfortable. This prevents your knees from bearing too much of the load. Stand in front of a mirror and lower yourself slowly. When you reach a point where your knees start to feel strained, make a mental note and aim to only squat to that depth for now.

Having an object like a chair behind you serves as a guide to how low you're going while still practicing good form. Focus on staying within a comfortable, pain-free range as you build strength. Over time, you'll find that you're able to squat a little deeper without discomfort.

**Forward torso lean —** Shifting your torso forward and pushing your hips back while squatting alleviates some of the strain placed on your knees and transfers more of the load to your glutes and hamstrings. This variation is also recommended if you have kneecap pain or osteoarthritis, or if you've undergone ACL reconstruction. However, if you have lower back problems, this version is not for you, as it increases the demand on your lower spine.

To get the most out of this variation, keep your core engaged and avoid excessive arching in your lower back. Focus on pushing your hips backward while keeping your knees stable, making sure that the movement is coming from your hips rather than the knees. Like other squat variations, start slow and focus on form rather than depth.

**Outward toe rotation —** Another easy way to modify your squat is by turning your toes outward by about 30 degrees. This adjustment allows for a more stable stance, distributing the weight more evenly across your hips and thighs, and prevents the knees from buckling inward, which places unnecessary strain on the joints.

However, it's important not to over-rotate your feet, because if your toes are angled too far outward (more than 45 degrees), you will lose stability and balance, so find an angle that feels comfortable for you. This variation works well for those with kneecap pain or recovering from post-ACL injury, but it could cause discomfort if you have arthritis.

**Wide stance —** By stepping your feet slightly wider than shoulder-width apart, you engage your glutes and hamstrings more, which takes some of the load off your knees. However, be careful not to step out more than 1.5 times your shoulder width, as it will cause your knees to collapse inward and increase your risk of knee pain.

Adding a resistance band around your thighs increases the challenge and further engages your glute muscles, making this variation even more effective. It's a great way to build lower-body strength without overloading your knees, especially if you're dealing with kneecap pain.

**Box squat —** This variation is ideal for beginners or those with mobility and stability issues. To perform a box squat, stand in front of a box or bench with your feet shoulder-width apart. Begin the squat by pushing your hips back, slowly lowering your body until you lightly sit on the box. Once seated, pause for a second, then drive through your heels to return to a standing position.

The box provides support and controls your depth, ensuring you don't squat too low, which aggravates knee pain. This variation not only reduces the load on your knees but also encourages proper form. It builds strength in your quads, glutes and hamstrings while improving balance as well.

**Wall squat —** Also known as the wall sit, this static squat variation builds lower-body strength and muscle endurance without the dynamic movement of a traditional squat, making it a good option for those rehabbing from a knee injury or easing into squatting.

To perform this, stand with your back flat against a wall and your feet a few inches away from the wall, shoulder-width apart. Slowly slide down the wall, bending your knees until your thighs are at a 45-degree angle.[12]

Don't push yourself to go too deep or do the usual 90-degree angle for wall squats, as it could make your knee pain worse. Hold the position for 10 seconds, then push through your heels to stand back up.[13]

**Assisted squat —** An assisted squat uses support from equipment like resistance bands or TRX straps, or even from stable surfaces such as a table or door frame. This allows you to perform a full range of motion while maintaining good form and reducing the load on your knees and legs. To do this, simply grab onto the stable surface and slowly lower yourself into a squat while keeping your feet shoulder-width apart.

**Goblet squat —** One of the primary goals of the goblet squat is to have your elbows touch the insides of your knees at the lowest point of the squat. This encourages your

knees to stay aligned with your toes, preventing them from angling inward and putting extra stress on the knee joint. It's also effective for strengthening the legs, glutes and core.

To perform a goblet squat, hold a kettlebell or dumbbell close to your chest with both hands. Stand with your feet shoulder-width apart, toes slightly pointed outward. Squat down by pushing your hips back and bending your knees, keeping the weight close to your body. Engage your core and keep your back straight. Push through your heels to return to standing.[14]

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## Additional Tips for Safe and Pain-Free Squatting

In addition to modifying your squat technique, follow these safety reminders and tips while doing squats to minimize knee pain and get the best results:[15,16,17]

1. **Listen to your body —** Pay close attention to how your knees feel during and after doing squats. If you experience sharp or persistent pain, it's essential to stop and reassess your technique or take a break. Listening to your body helps prevent further injury and allows you to adjust your routine accordingly.

2. **Warm up properly —** A good warm-up increases blood flow to your muscles and lubricates your joints, preparing them for the work ahead.[18] Start with some light cardio to get your heart rate up, followed by dynamic stretches that mimic the squatting movement like leg swings and walking lunges.

3. **Choose proper footwear —** Wearing supportive and well-cushioned shoes significantly impacts your squat performance and knee pain. Select footwear that provides stability and adequate arch support, as poor-quality footwear causes misalignment and increases stress on your knees. Avoid worn-out shoes, as they compromise your footing and balance.

4. **Focus on your form —** Maintaining proper form is important for any exercise. Always make sure your knees are aligned with your toes while doing squats, and

avoid letting them cave inward. Engaging your core and glutes during the exercise allows you to maintain good posture and reduces stress on your knees. Consider exercising in front of a mirror or recording your squats to check your alignment and make necessary adjustments.

5. **Improve your flexibility —** Tight muscles in your hips, calves and ankles restrict your range of motion and place additional strain on your knees. Incorporating regular stretching or yoga into your routine enhances flexibility and leads to smoother, more controlled movements.

6. **Allow yourself to recover —** Don't underestimate the importance of recovery. Overtraining leads to fatigue and poor form, and eventually exacerbates pain or causes injury. Make sure you're getting adequate rest between workouts and consider incorporating recovery techniques like foam rolling or massage.

7. **Consult a professional if you have persistent knee pain —** If you continue to experience knee pain despite making adjustments to your squats, consult a physical therapist or healthcare professional. They will help identify underlying issues, assess your movement patterns and provide personalized guidance to address the pain and prevent further injury.

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